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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,697	10/16/2003	Paul A. Kohl	62020-1550	7668
24504	7590	09/23/2005	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP			LEE, SIN J	
100 GALLERIA PARKWAY, NW			ART UNIT	
STE 1750			PAPER NUMBER	
ATLANTA, GA 30339-5948			1752	

DATE MAILED: 09/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/686,697	Applicant(s) KOHL ET AL.	
	Examiner Sin J. Lee	Art Unit 1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 23-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-12, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 9, 13-17 and 20-22 is/are objected to.
- 8) ☒ Claim(s) 1-27 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

✓

### DETAILED ACTION

1. In view of the terminal disclaimer filed, previous double patenting rejection on claims 1-22 over copending App. No.10/699,330 is hereby withdrawn.
2. Due to newly cited prior arts, the following rejections are made non-final.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 (which depends from claim 3) recites the limitation "the polynorbornene" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required. For the purpose of examining the claim on the merit, the Examiner assumed that applicants meant claim 6 to depend from claim 5 (instead of claim 3).

5. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 depends from present claim 3, which claims a positive tone photoinitiator. However, those photoinitiators listed in claims 8 are negative tone photoinitiators (see page 8 of specification).

Appropriate correction is required. For the purpose of examining the claim on the merit, the Examiner assumed that applicants meant claim 8 to depend from claim 2.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-6, 10-12, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Shick et al (6,121,340).

Shick teaches a negative tone photodefinable dielectric composition comprising a polycyclic addition polymer containing recurring silyl pendant groups along the poly backbone (which is prepared by polymerizing a silyl substituted polycyclic monomer such as *norbornene*) and a photosensitive crosslinking initiator (see col.9, lines 65-67, col.10, lines 1-2, lines 16-40). In col.65, lines 19-46, Shick teaches forming a negative tone image by applying his photodefinable composition (which contains his polymer and an onium salt photoinitiator (*present photoacid generator*)) to a substrate, exposing the obtained film to UV radiation through a mask, developing the exposed film to remove the unexposed portions and to give negative tone images. Therefore, Shick teaches present inventions of claims 1, 2, 4, 5, 10-12, 18 and 19. Shick also teaches present invention of claim 3 because present specification (pg.8) states that present positive tone photoinitiator includes a photoacid generator.

With respect to present claim 6, Shick teaches that his polymers can be terminated with an olefinic end group (see col.15, lines 58-67, col.16, lines 1-20). Thus, the prior art teaches present invention of claim 6.

8. Claims 1, 2, 4, 5, 7, 8,10-12, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Jacobine et al (5,167,882).

Jacobine teaches (see abstract) a method of stereolithography for building a three-dimensional article using a liquid resin composition, which comprises (a) a first compound having a *plurality* of norbornene groups thereon, (b) a second compound having a plurality of thiol groups therein, and (c) a free radical photoinitiator. As particularly preferred norbornene compounds, Jacobine mentions norbornene carboxylate esters of *polyols* such as 1,6-hexanediol, trimethylolpropane, ethoxylated bisphenol A (col.2, lines 59-62). As examples for the photoinitiator, Jacobine includes benzoin compounds (see col.3, lines 27-35). Jacobine builds a three-dimensional article from his liquid resin composition by *patternwise curing* successive layers of a bath of the curable liquid resin composition until the article has been completely built up. Therefore, Jacobine teaches present inventions of claims 1, 2, 4, 5, 7, 8,10-12, 18 and 19.

#### ***Allowable Subject Matter***

9. Claims 9, 13-17, and 20-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Neither Shick nor Jacobine teaches or suggests present photoinitiators of claim 9. Neither Shick nor Jacobine

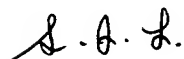
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teaches or suggests present step of removing exposed portions of the photodefinable polymer composition as presently recited in claim 13. Neither Shick nor Jacobine teaches or suggests present method of claim 14.

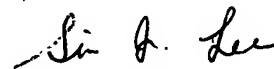
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Lee  
September 18, 2005



**SIN LEE**  
**PRIMARY EXAMINER**